FIG. 1

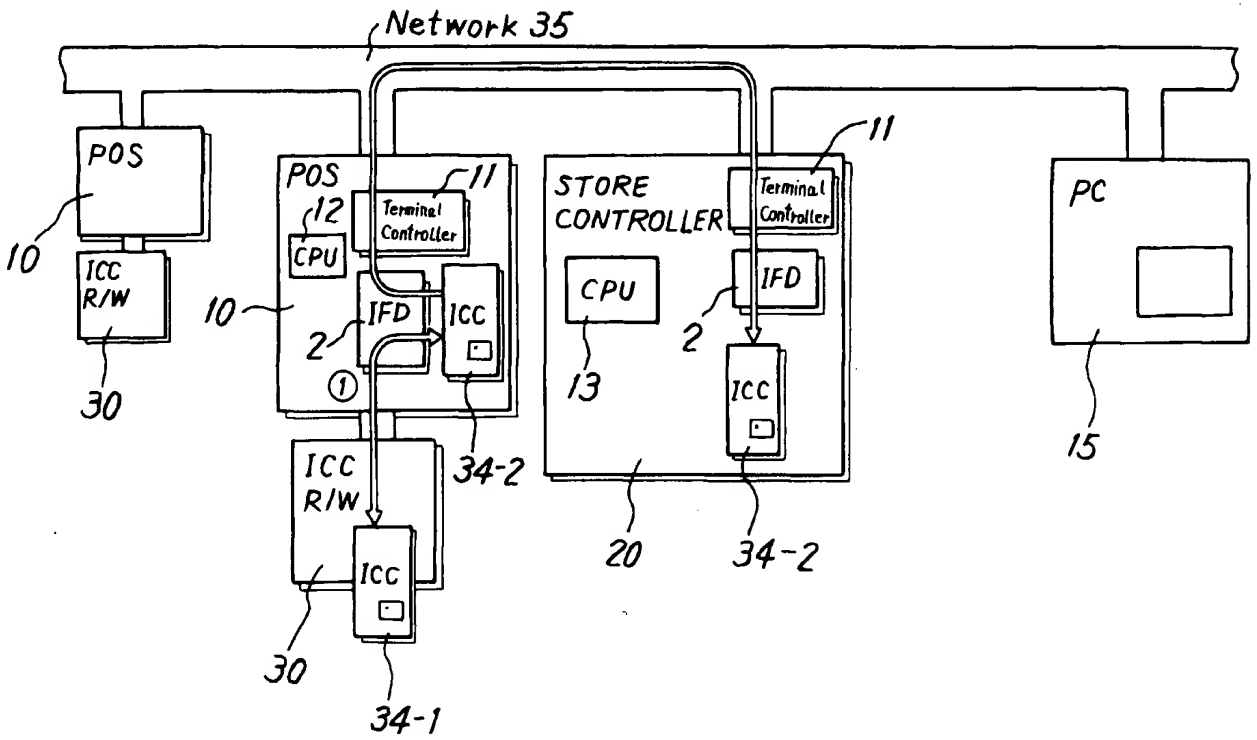

Network 35
POS
10
ICC R/W
30
POS
12
CPU
Terminal Controller
11
10
IFD
ICC
2
1
ICC R/W
ICC
30
34-1
34-2
STORE CONTROLLER
Terminal Controller
11
CPU
13
IFD
2
ICC
20
34-2
PC
15

FIG. 2

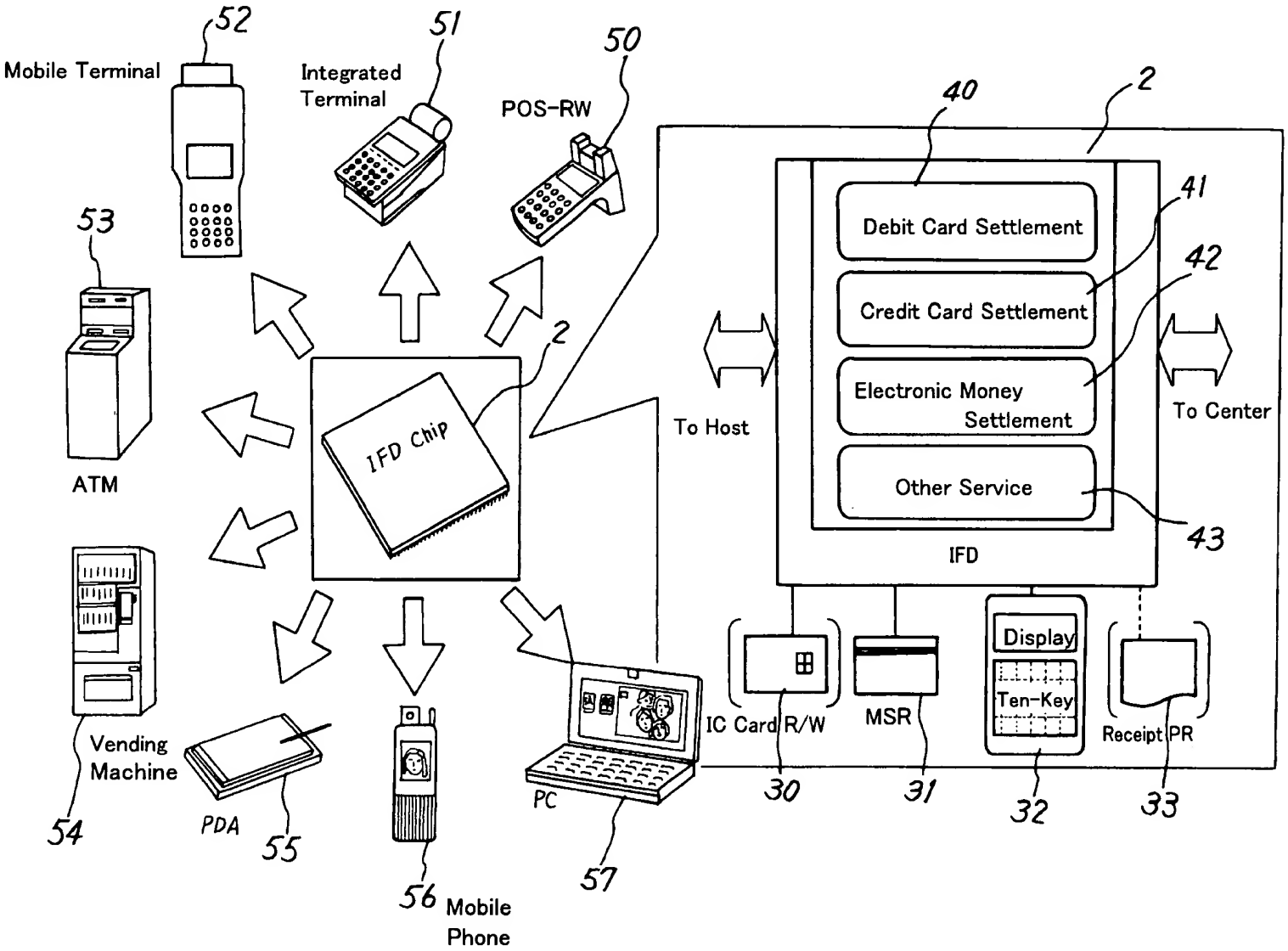

52
Mobile Terminal
51
Integrated Terminal
50
POS-RW
53
ATM
2
IFD Chip
40
2
Debit Card Settlement
41
Credit Card Settlement
42
Electronic Money Settlement
Other Service
43
To Host
To Center
IFD
Display
Ten-Key
IC Card R/W
MSR
Receipt PR
30
31
32
33
Vending Machine
54
PDA
55
56
Mobile Phone
PC
57

FIG. 3

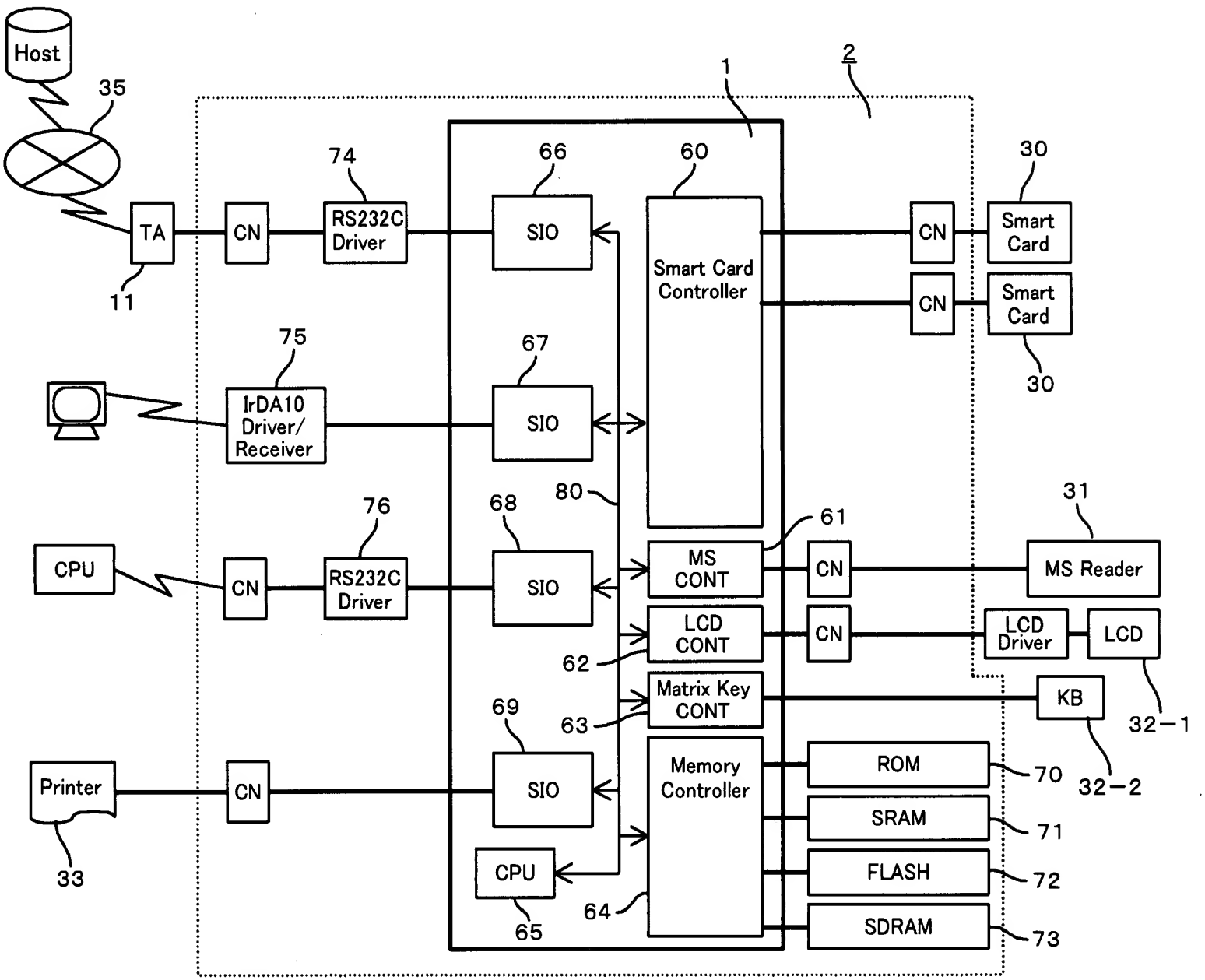

Host
35
TA
11
CN
74
RS232C Driver
66
SIO
60
Smart Card Controller
1
2
30
CN
Smart Card
CN
Smart Card
30
75
IrDA10 Driver/ Receiver
67
SIO
80
68
SIO
76
CPU
CN
RS232C Driver
61
MS CONT
CN
31
MS Reader
LCD CONT
CN
LCD Driver
LCD
62
Matrix Key CONT
KB
32-1
69
63
Printer
CN
SIO
Memory Controller
ROM
70
32-2
SRAM
71
CPU
FLASH
72
64
65
SDRAM
73
33

FIG. 4

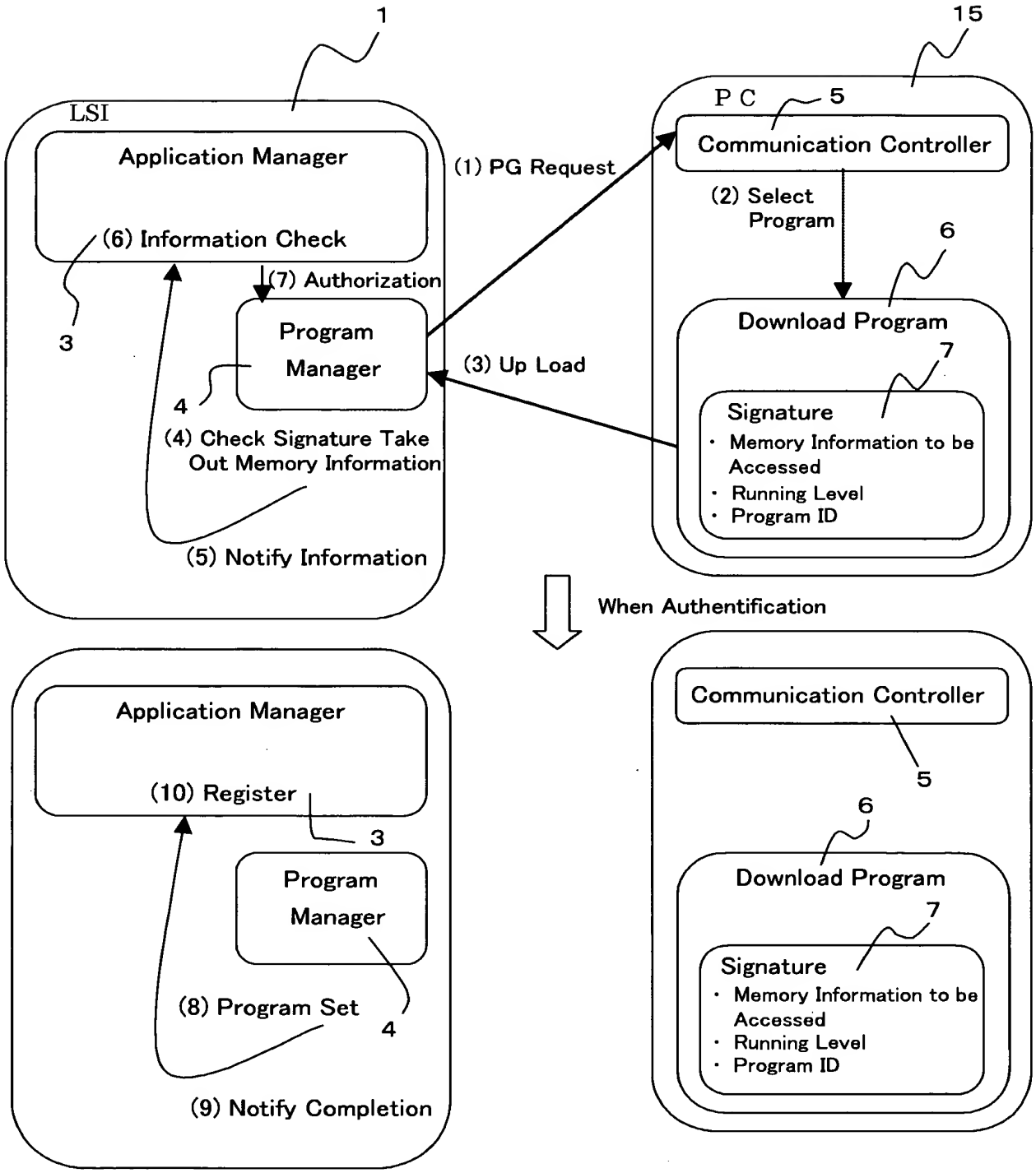
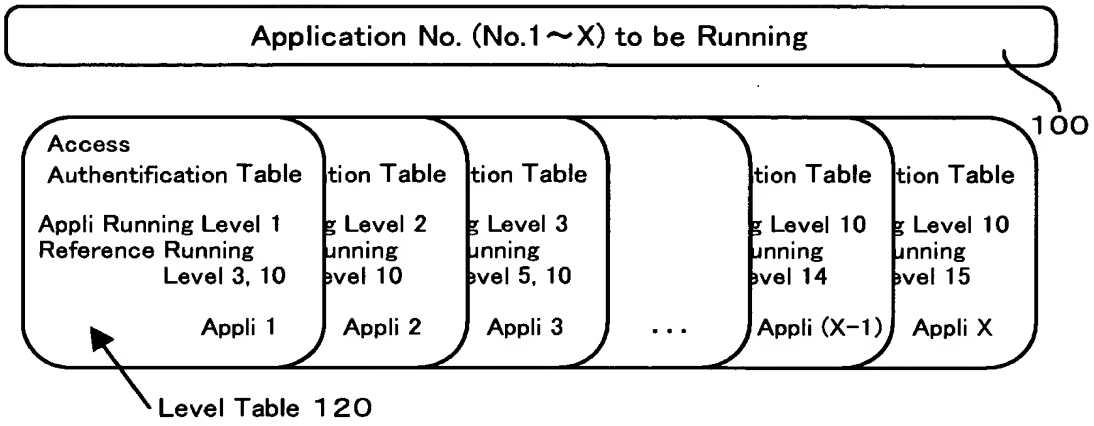

1
LSI
Application Manager
(6) Information Check
3
(7) Authorization
Program Manager
4
(4) Check Signature Take Out Memory Information
(5) Notify Information
(1) PG Request
(3) Up Load
15
PC
5
Communication Controller
(2) Select Program
6
Download Program
7
Signature
· Memory Information to be Accessed
· Running Level
· Program ID
When Authentification
Application Manager
(10) Register
3
Program Manager
4
(8) Program Set
(9) Notify Completion
Communication Controller
5
6
Download Program
7
Signature
· Memory Information to be Accessed
· Running Level
· Program ID

FIG. 5



Running Level 1		
Attribute (Read/Write/Code)	Region Header Address	Region Length
Read	×××× ××××H	0000 0100 H
Read/Write	×××× ××××H	0001 0000 H
Read/Write	×××× ××××H	0001 0000 H
Read/Write	×××× ××××H	0000 8000 H
Code	×××× ××××H	0010 0000 H
Code	×××× ××××H	0000 1000 H

Running Level 2		
Attribute (Read/Write/Code)	Region Header Address	Region Length
Read/Write	×××× ××××H	0001 0000 H
Read/Write	×××× ××××H	0000 8000 H
Code	×××× ××××H	0010 0000 H

. . .

Running Level 15		
Attribute (Read/Write/Code)	Region Header Address	Region Length
Read	×××× ××××H	0000 0100 H
Read	×××× ××××H	0000 0080 H
Read/Write	×××× ××××H	0000 0080 H
Code	×××× ××××H	0010 0000 H

FIG. 6

Program ID		
Running Level A		
Attribute (Read/Write/Code)	Region Header Address	Region Length
Read	xxxx xxxx H	0000 0100 H
Read	xxxx xxxx H	0000 0080 H
Read/Write	xxxx xxxx H	0000 0080 H
Code	xxxx xxxx H	0010 0000 H

Memory Information

FIG. 7

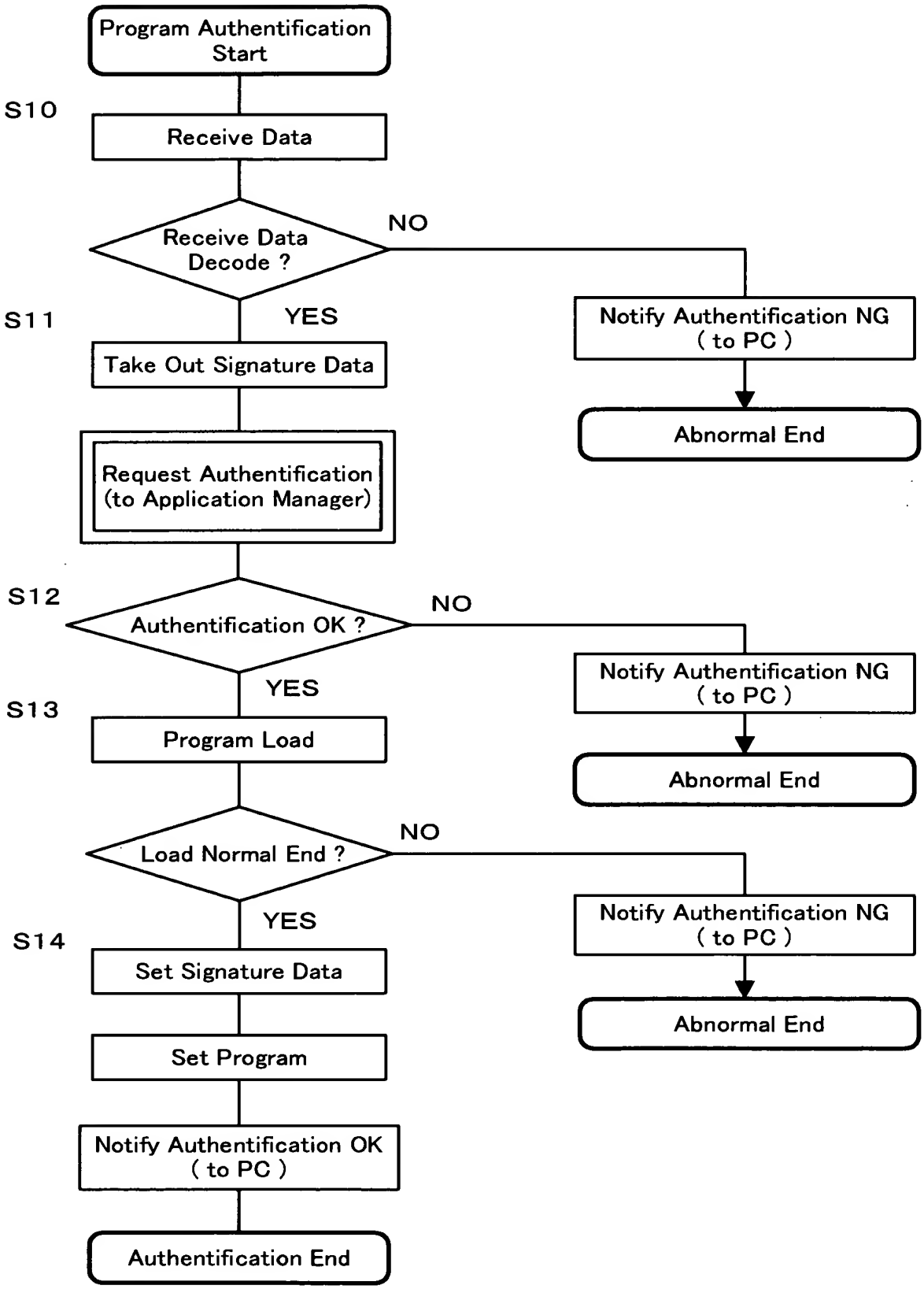

Program Authentification Start
S10
Receive Data
Receive Data Decode ?
NO
YES
S11
Take Out Signature Data
Notify Authentification NG (to PC)
Abnormal End
Request Authentification (to Application Manager)
S12
Authentification OK ?
NO
YES
S13
Program Load
Notify Authentification NG (to PC)
Abnormal End
Load Normal End ?
NO
YES
S14
Set Signature Data
Notify Authentification NG (to PC)
Abnormal End
Set Program
Notify Authentification OK (to PC)
Authentification End

FIG.8

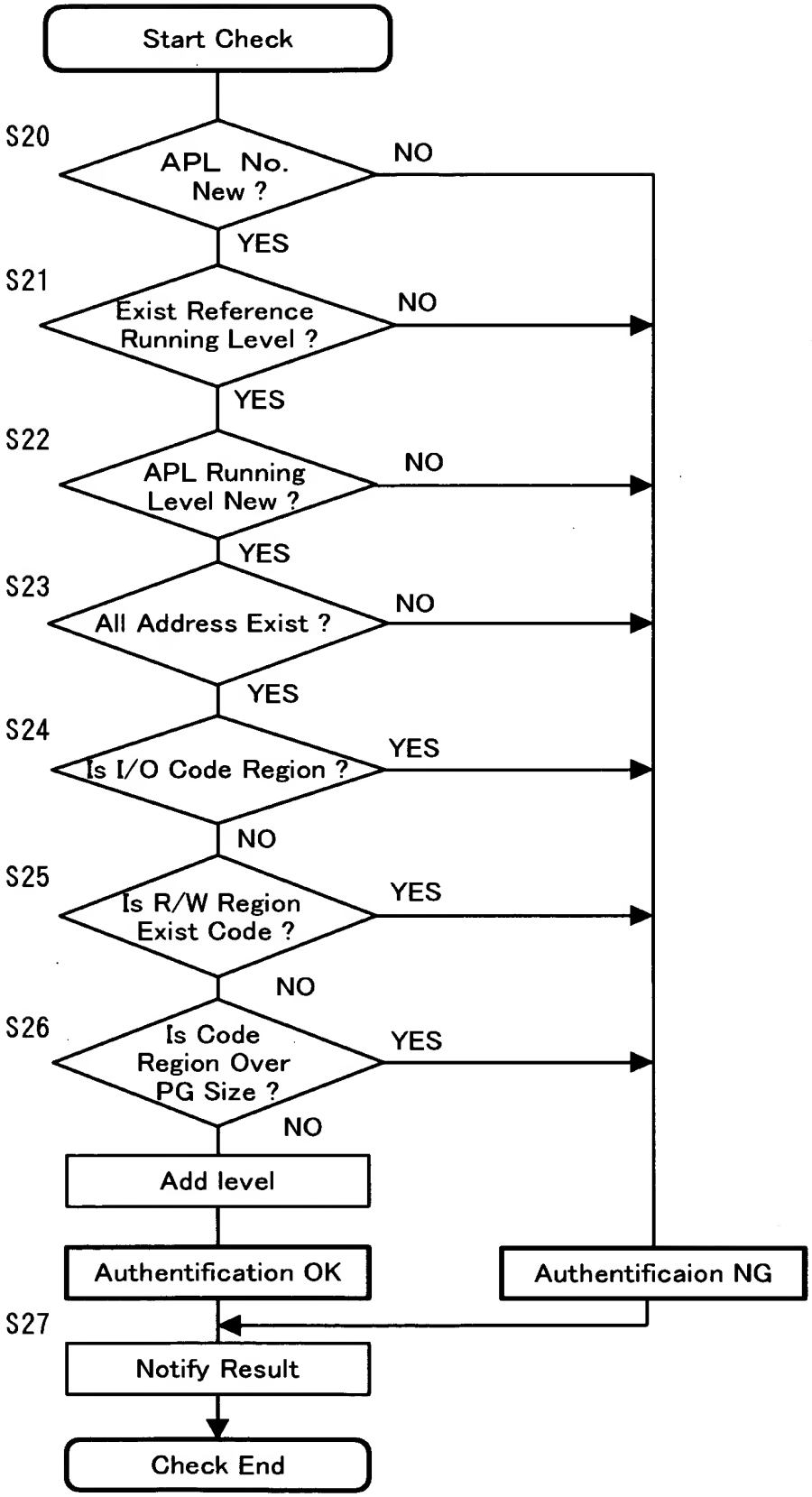
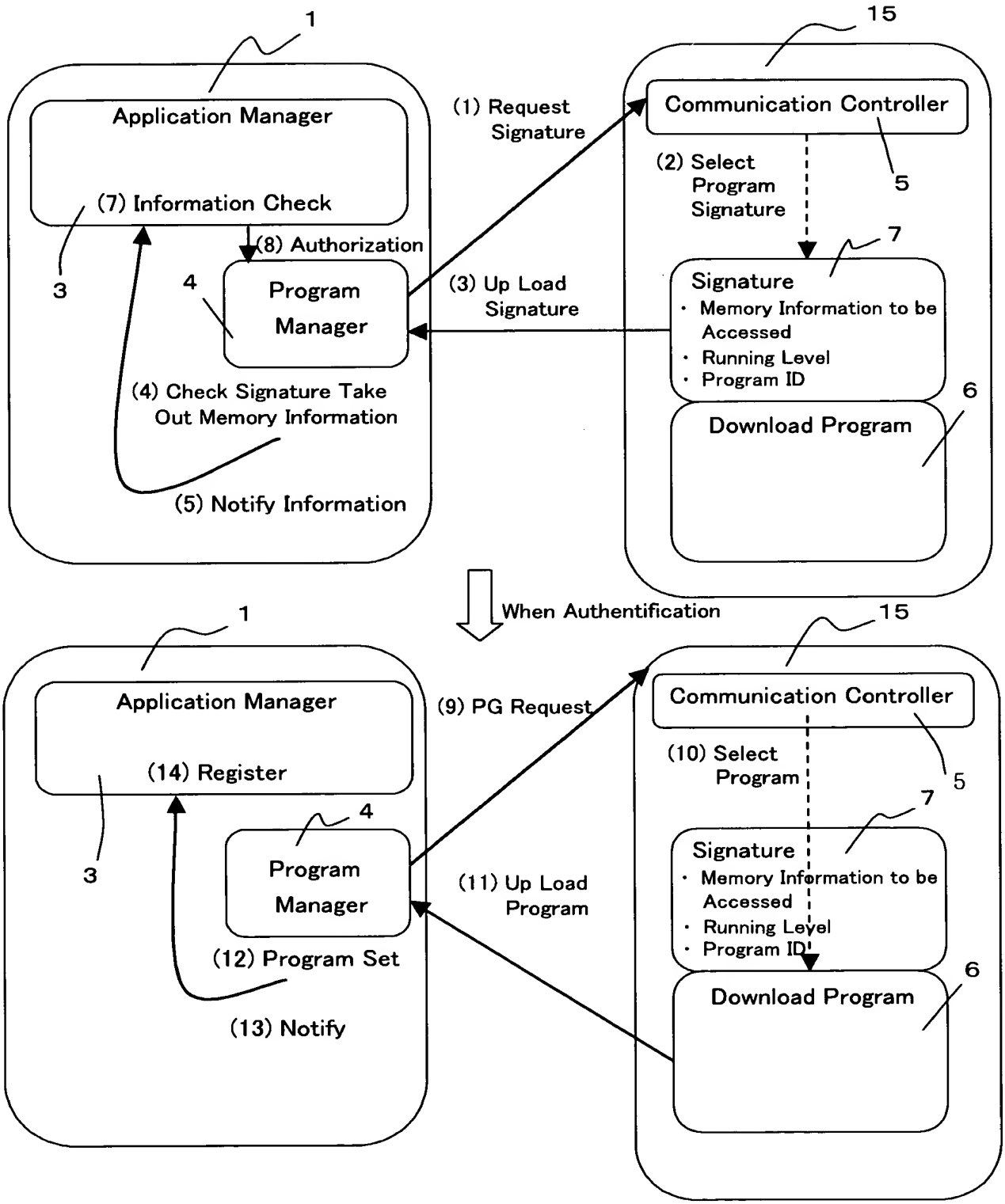

Start Check
S20
APL No. New ?
NO
YES
S21
Exist Reference Running Level ?
NO
YES
S22
APL Running Level New ?
NO
YES
S23
All Address Exist ?
NO
YES
S24
Is I/O Code Region ?
YES
NO
S25
Is R/W Region Exist Code ?
YES
NO
S26
Is Code Region Over PG Size ?
YES
NO
Add level
Authentification OK
Authentificaion NG
S27
Notify Result
Check End

FIG. 9


1
Application Manager
(7) Information Check
3
(8) Authorization
4
Program Manager
(4) Check Signature Take Out Memory Information
(5) Notify Information
(1) Request Signature
(3) Up Load Signature
15
Communication Controller
5
(2) Select Program Signature
7
Signature
· Memory Information to be Accessed
· Running Level
· Program ID
6
Download Program
When Authentification
1
Application Manager
(14) Register
3
4
Program Manager
(12) Program Set
(13) Notify
(9) PG Request
(11) Up Load Program
15
Communication Controller
5
(10) Select Program
7
Signature
· Memory Information to be Accessed
· Running Level
· Program ID
6
Download Program